

UDC 547.241

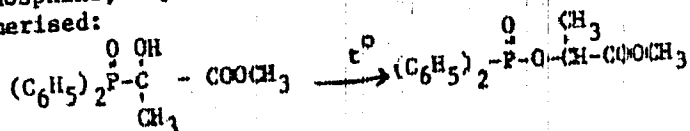
USSR

PUDOVIK, A. N., GUR'YANOVA, I. V., ROMANOV, G. V., and LAPIN, A. A., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Reaction of Diphenylphosphine With Methyl Ester of Pyruvic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 709-710

Abstract: Diphenylphosphine was added dropwise to an excess of methyl pyruvate, the mixture heated to 45-50°, and then cooled. After several days crystals appeared and were recrystallized from hexane to give (α-hydroxy-α-carbomethoxy)-ethylidiphenylphosphine, m.p. 126-128°. In the temperature range 129-148 the production isomerised:



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1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--GENERAL ACTION AND TOXICITY OF RIBONUCLEIC ACID PREPARATIONS -U-
AUTHOR--LAPIK, A.S., MATIYENKO, N.A. *23* *L*
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 94-5
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RNA, TOXICOLOGY, LIVER, MOUSE, CAT, RAT, RABBIT, PYROGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1665

STEP NO--UR/0390/70/0337-001/0094/0095

CIRC ACCESSION NO--AP0103431

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103431

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BOVINE LIVER AND HUMAN EMBRYONIC RNA PREPNS. ADMINISTERED ONCE TO MICE I.V. AT 50 MG-KG, I.P. AT 2000 MG-KG, OR 30 TIMES S.C. AT 250 MG-KG HAD NO DEFINABLE TOXICITY AND AT COMPARABLE DOSES DID NOT AFFECT THE CENTRAL NERVOUS SYSTEM, ARTERIAL PRESSURE, RESPIRATION, MUSCLE TONE, OR INTRAUTERINE EMBRYONIC DEVELOPMENT IN MICE, CATS, AND RATS. AT 0.5, 10, AND 20 MG-KG I.V. THE RNA PREPNS. HAD A MODERATE PYROGENIC EFFECT IN RABBITS.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--GENERAL ACTION AND TOXICITY OF RIBONUCLEIC ACID PREPARATIONS -U-

AUTHOR--LAPIK, A.S., MATIYENKO, N.A.

COUNTRY OF INFO--USSR

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SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RNA, TOXICOLOGY, LIVER, MOUSE, CAT, RAT, RABBIT, PYROGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/1665

STEP NO--UR/0390/T0/033/001/0094/0005

CIRC ACCESSION NO--AP0103431

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103431

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BOVINE LIVER AND HUMAN EMBRYONIC RNA PREPNS. ADMINISTERED ONCE TO MICE I.V. AT 50 MG-KG, I.P. AT 2000 MG-KG, OR 30 TIMES S.C. AT 250 MG-KG HAD NO DEFINABLE TOXICITY AND AT COMPARABLE DOSES DID NOT AFFECT THE CENTRAL NERVOUS SYSTEM, ARTERIAL PRESSURE, RESPIRATION, MUSCLE TONE, OR INTRAUTERINE EMBRYONIC DEVELOPMENT IN MICE, CATS, AND RATS. AT 0.5, 10, AND 20 MG-KG I.V. THE RNA PREPNS. HAD A MODERATE PYROGENIC EFFECT IN RABBITS.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SCATTERING OF NORMAL SOUND WAVES IN A NONREGULAR WAVEGUIDE AT
CRITICAL FREQUENCIES -U-
AUTHOR--LAPIN, A.D.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, AKUSTICHESKIY ZHURNAL (ACOUSTICS JOURNAL), VOL. XV, NO. 4,
1969, PP 567-571
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PERTURBATION METHOD, ACOUSTIC SCATTERING, WAVEGUIDE ACOUSTICS,
ACOUSTIC FREQUENCY, CRITICAL FREQUENCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1016

STEP NO--UR/0046/69/015/004/0567/0571

CIRC ACCESSION NO--AP0112169

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--30DCT70
CIRC ACCESSION NO--AP0112169
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IF THE SOUND FREQUENCY IS CLOSE TO
CRITICAL IN AN ALMOST REGULAR WAVEGUIDE, THE SCATTERED FIELD IS
APPRECIABLE AS COMPARED TO THE INCIDENT WAVE FIELD. THEREFORE, A
SPECIAL METHOD OF SMALL PERTURBATIONS IS PROPOSED FOR THE ZERO
APPROXIMATION WHICH HOLDS FOR CRITICAL FREQUENCIES OF NORMAL WAVES. THE
STUDY IS RESTRICTED TO THE PLANE PROBLEM IN A WAVEGUIDE HAVING
ABSOLUTELY SOFT WALLS AND FILLED WITH A MEDIUM. RELATIONS ARE DERIVED
BETWEEN THE AMPLITUDE OF THE NORMAL INCIDENT WAVE AND THE AMPLITUDE OF
THE IRREGULARITIES IN THE WAVEGUIDE. THE METHOD IS USED TO CALCULATE
SOUND SCATTERING IN A ROUND WAVEGUIDE FILLED WITH A HOMOGENEOUS MEDIUM.
THE METHOD CAN BE USED TO STUDY SURFACE RESONANCE ON A PERIODICALLY
UNEVEN SURFACE. ORIG. ART. HAS 1 REF. FACILITY: ACOUSTICS
INSTITUTE, ACADEMY OF SCIENCES USSR, MOSCOW.

UNCLASSIFIED

Luminescence

USSR

UDC: 661.143

LAPIN, A. P.

"Singularities of Aging of Powder Electrophosphors in Some Polar Dielectrics"

Sb. nauch. tr. VNIi lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5, pp 108-113 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L185)

Translation: The author investigates the effect of the dielectric medium on certain characteristics of powder electroluminescent compositions. A drop in brightness of the composition -- aging -- is a consequence of processes which take place in the electroluminescent compositions, and the dielectric medium affects only the rate of aging. The brightness half-life $t_{1/2}$ is proportional

to $\sqrt{\epsilon - \epsilon_0}$, where ϵ is the permittivity of the medium, and ϵ_0 is a constant.

Resumé.

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UDC 539.3.019.3:669.15--19...83

L
LAPIN, A. N., NIKOLAYEV, V. A., HAZOV, I. A., Leningrad

"Mechanical Properties of Kh18N10T Steels Following Neutron Irradiation; Their Reduction During Annealing"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Jan-Feb 70, pp 8-13

Abstract: Radiation damage in metals is known to be directly proportional to the size of the integral dose, and inversely proportional to the irradiation temperature; this can be used as a basis for further study of the mechanisms of radiation damage. The authors studied shifts in the mechanical properties of Kh18N10T steels following an integral neutron dose of 10^{19} 1 Mev (difference in $\sigma \sim 0.2$; form of the tensile diagram, reduced strain hardening with increase in dose). These shifts are explained on the basis of the interaction between moving dislocations and complex radiation defects, and on the basis of differences in concentration and in the spectrum of the complex defects.

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1/2 044 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--MECHANICAL PROPERTIES OF KHI8N10T STEEL AFTER NEUTRON IRRADIATION,
AND THEIR RECOVERY DURING ANNEALING -U-
AUTHOR--LAPIN, A.N., NIKOLAYEV, V.A., RAZOV, I.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. OBRAB. MATER. 1970, (1) 8-13

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, MATERIALS, MECH., IND.,
CIVIL AND MARINE ENGR
TOPIC TAGS--MECHANICAL PROPERTY, STAINLESS STEEL, ANNEALING, METAL CREEP,
DEFORMATION RATE, NEUTRON IRRADIATION, ALLOY DESIGNATION/TUAKHI8N10T
STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1988/0644

STEP NO--UR/0472/70/000/001/0013/0013

CIRC ACCESSION NO--AP0105623

UNCLASSIFIED

2/2 044

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--A0105623

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. MICROSPECIMENS (DIAM. 1, LENGTH 5 MM) FROM STEEL KHL9N10T (C 0.07, SI 0.52, MN 1.14, CR 19.0, NI 10.8, AND TI 0.53 WT. PERCENT) WERE TESTED FOR TENSILE STRENGTH AT DEFORMATION RATE 0.02-SEC BEFORE AND AFTER IRRADN. IN WORKING CHANNELS OF AN ACTIVE ZONE OF THE REACTOR RFT. THE RATIO OF FAST (IS GREATER THAN OR EQUAL TO 1 MEV) TO THERMAL NEUTRONS WAS 0.71 PLUS OR MINUS 0.12. THE EFFECT OF DOSE WAS DETD. AT 100-300DEGREES, WITHIN THE RANGE 10 PRIME19 TO 10 PRIME21 NEUTRONS-CM PRIME2. HOWEVER, OTHER PROPERTIES CHANGE WITHIN THIS RANGE; E.G. TENSILE STRENGTH DECREASED, WHILE RELATIVE ELONGATION INCREASED. THIS INDICATES THAT DOSES IS GREATER THAN 10 PRIME10 NEUTRONS-CM PRIME2 DID NOT CAUSE A TRUE SATN. STATE. THE EFFECT OF TEMP. WAS STUDIED AT 100-550DEGREES WITH DOSES 4 TIMES 10 PRIME20, 2 TIMES 10 PRIME20, 3.5 TIMES 10 PRIME20, AND 3.5 TIMES 10 PRIME20; EACH DOSE AT FOLLOWING TEMPS. 200-20, 250-300, 350-400, AND 5500SGREES, RESP. STUDIED STEEL REACHED MAX. STRENGTH AFTER IRRADN. AT 200-20DEGREES. THE SOFTENING (WEAKENING) EFFECT OF IRRADN. DECREASED AT TEMPS. IS GREATER THAN 300DEGREES AND AT 500DEGREES THERE WAS PRACTICALLY NO CHANGE IN STRENGTH OF THE STEEL. A PLATFORM OF CREEP WAS FORMED DURING THE INITIAL STAGES OF PLASTIC FLOW AND THIS INDICATES THAT SOME MECHANISM FACILITATING SLIP IS PRESENT DURING THESE STAGES.

UNCLASSIFIED

Luminescence

USSR

UDC 661.143.017

ELYAKHMAN, E. A., LAPIN, A. P.

"Determining the Reliability of Measuring the Stability of Electrophosphors When Aged in Strongly Polar Liquids"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and High-Purity Materials), 1972, vyp. 7, pp 40-43 (from RZh-Khimiya, No 9, May 73, abstract No 9L164 [resume])

Translation: The authors determine reliability when comparing measurements of the stability of electroluminescent compositions in strongly polar liquids and solid capacitors. It is shown that within a certain class of phosphors the proposed accelerated method has an accuracy of the order of 10% which is fully adequate for purposes of directed synthesis. Glycerin was used as the strongly polar liquid. The aging process was done at a frequency of 500 Hz. Computational formulas are given.

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Luminescence

USSR

UDC 661.143.546.48'221

IAPIN, A. P., LEONOV, B. A., and MOROZOV, O. A.

"Photosensitive Layers of Cadmium Sulfide With Longitudinal Photoconductivity, Produced by the Electrophoretic Method"

Sb. nauch. tr. VNIi lyuminoforov i osobo chist. veshchestv (Collection of Scientific Works of All-Union Scientific Research Institute for Phosphors and Ultrapure Substances), 1971, vyp. 6, pp 99-104 (English summary) (from RZh-Khimiya, No 16, 25 Aug 72, Abstract No 16L13B from summary)

Translation: An analysis is made of the existing methods of obtaining CdS photoresistors. To obtain layers with longitudinal photoconductivity, use of the phenomenon of electrophoresis is suggested. This method of layer deposition in an electrophoretic bath makes it possible to obtain CdS photoresistors with high photosensitivity and good reproducibility as far as electric and photoelectric properties are concerned.

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USSR

UDC 517.949

LAPIN, A. V., and LYASHKO, A. D., Kazan'

"Study of the Net Method for Nonlinear Elliptic Equations of Any Order"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 10, Oct 70, pp 37-43

Abstract: The article studies a difference scheme (solvability, approximation, convergence) for quasilinear elliptic equations of the order $2m$, for which the ideas of nonlinear monotone operator theory and the method of energy inequalities are widely used. Proving convergence involves a certain difficulty due to the inhomogeneity of the boundary condition, which occurs in constructing difference schemes for equations of an order higher than the second. The "effect" of this condition is eliminated by special construction of an auxiliary function. The article is limited to the case of one equation.

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LAPIN, A.V.

Academy 1

UNCLASSIFIED

CONFIDENTIAL

Medical Branch

Section 11

Page 78
June 78

Department of Evolutionary Physiology and Biochemistry
Institute of Evolutionary Physiology and Biochemistry

(U) During this quarterly reporting period, 14 new articles were located from the Institute of Evolutionary Physiology and Biochemistry (IPEB) of the USSR. On the basis of these articles, it was possible to identify the subjects of the articles and the dates.

Baron, V. A.	artificial	1970 (3)
Baron, V. A.	artificial	1970 (5)
Baron, V. A.	artificial	1970 (6)
Baron, V. A.	artificial	1970 (7)
Baron, V. A.	artificial	1970 (8)
Baron, V. A.	artificial	1970 (9)
Baron, V. A.	artificial	1970 (10, 11)

List of the articles were considered by persons already identified with the Institute. These articles dealt with nerve physiology (12), muscle physiology (13) and enzyme activity (14-16).
(U) A large number of persons have been identified with the Institute during the preceding quarterly reporting periods. To provide a ready source of reference, given below is a list of all the IPEB staff members identified to the present time.

USSR

UDC 550.42:550.313(571.1/5)

KOVALEV, V. P. and LAPIN, B. N., Institute of Geology and Geophysics, Siberian Division, Academy of Sciences, USSR

"Uranium and Thorium in Several Different-Age Volcanogenic Formations in the South of Siberia"

Novosibirsk, Geologiya i Geofizika, No 6, June 1973, pp 116-122

Abstract: This article gives a comparative analysis of data gained from an x-ray geochemical study of the Cambrian, Devonian, and Triassic volcanogenic rocks found in the south of Siberia. Much of these data are source material. The authors find a close correlation between uranium and thorium and reveal some of the local features discovered. The authors make several conclusions with respect to these formations. They find that the basalt different-age rocks in the regions of the investigation are poor in uranium and thorium and thus differ little from one another. The manifestations of acid vulcanism of these same ages also reveal much in common among themselves and are very rich in radioactive

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USSR

KOVALEV, V. P. and LAPIN, B. N., *Geologiya i Geofizika*, No 6, June 1973, pp 116-122

elements. The basalt rocks on the one hand and the neutral and acid volcanic formations on the other differ sharply in the amounts of uranium found in them, thus correlating with the overall aluminum oxide nature of the products of magmatism. The correlation factor between uranium and thorium is higher in the basic effusives and lower in the acid ones. The alkali derivatives are richer in uranium and thorium than are their analogs in the alkali-earth series. The alkalinity, that is, the alkali-earth nature of the manifestations of basic and acid vulcanism, varies very little with time, and judging from the uranium-thorium ratio makes up a characteristic local situation. The x-ray geochemical data confirm the conclusion of a directional decrease in alkalinity in the rocks of different-age basalt and trachyandesite-liparite formations from east to west. The article contains 1 table and 6 bibliographic references.

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" 31 "

1/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CENTRAL NEUROTROPIC ACTIVITY OF AMINOPROPYL AND AMINOPROPIONYL
DERIVATIVES OF IMINOBIBENZYL AND DIPHENYLAMINE AND ITS RELATION TO THE
AUTHOR--(04)-LAPIN, I.P., KSENOFONTOVA, T.A., KVITKO, I.M., PORAYKOSHITS,
B.A.
COUNTRY OF INFO--USSR
SOURCE--FARMAKOLOGIYA I TOKSIKOLOGIYA, 1970, VOL 31, NR 1, PP 8-13
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--NERVOUS SYSTEM DRUG, MOUSE, RESERPINE, CHOLINERGIC, TOXICITY,
IONIZATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1368 STEP NO--UR/0390/70/083/001/0103/0013
CIRC ACCESSION NO--AP0131791

2/2 029

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--A90131791

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. EXPERIMENTS WITH MICE SHOWED THAT THE DECREASE IN THE BASICITY OF THE AMINO GROUP IN THE SIDE CHAIN OF THE COMPOUNDS GIVEN IN THE TABLE BELOW IS ACCOMPANIED BY REDUCTION, OR EVEN DISAPPEARANCE OF THE ANTIRESERPINE, ADRENO POSITIVE, AND CHOLINOLYTIC ACTIVITY. IT IS ASSUMED THAT SUCH ACTIVITY REQUIRES THAT THE PKA OF THE AMINO GROUP BE KEPT ABOVE 8.3. NO CORRELATION WAS SHOWN BETWEEN THE TOXICITY OF THE COMPOUNDS INVESTIGATED AND THEIR PKA VALUES.

USSR

UDC: 620.193.2'198

KVOKOVA, I. M., DRUZHININA, T. A., LAPINA, L. N., POVALISHNIKOVA, T. Ye.,
Moscow Institute of Steel and Alloys

"Investigation of a Multilayered Galvanic Coating Based on Nickel for Corrosion Protection Under Open-Sea Conditions"

Moscow, Zashchita Metallov, Vol 9, No 3, May/Jun. 73, pp 264-269

Abstract: The paper deals with problems of the corrosion behavior of a multilayered nickel-based galvanic coating under the atmospheric conditions of the tropic seas. A layer of dull nickel 15-30 μm thick is applied to a base of Armco iron, copper and Kovar. As a preliminary step, all substrates were cathodically degreased in an alkaline solution for 5 minutes and then chemically etched: the Armco iron in hydrochloric acid; the copper in a mixture of orthophosphoric, sulfuric and hydrochloric acids; the Kovar in a mixture of nitric, acetic and hydrochloric acids. The composition of the tinning electrolyte (g/l): $\text{Na}_2\text{SnO}_3 \cdot 3\text{H}_2\text{O}$ 80, NaOH 13-18, CH_3COONa 25. The bright nickel electrolyte (g/l): $\text{NiSO}_4 \cdot 7\text{H}_2\text{O}$ 250; NaCl 15; H_3BO_3 30; 1,4-butyldiol 0.7; sodium allylsulfonate 0.5; chloramine B 1. On the basis of testing of multilayer coatings on all three substrates it

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USSR

KVOKOVA, I. M. et al., Zashchita Metallov, Vol 9, No 3, May/Jun 73, pp 264-269

is concluded that a coating of Ni₂S₃ (15 μm) - Sn (15 μm) - Ni₃S₂ (10 μm) can be recommended for protecting important components from corrosion under tropical sea conditions with steady-state operating schedules without intense cooling to temperatures where tin undergoes an allotropic change and the coating loses its protective properties.

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MEDICINE

LAPIN, M. D.

001551

50: JPRS 54153
29 SEP 71
DWC: 616, JPRS: 147-003, 1-007, 111

STRIKING FACTORS IN GASTROINTESTINAL HEMORRHAGES
(Article by Yu. Ye. Kharin, I. G. Koshel'nik, A. S. Yermolov, N. D. Galin, Second Moscow Medical Institute, Moscow, Vopr. Akad. Med. Nauk SSSR, 1971, No 7, pp 55-59)

For more than 100 years there has been a scientific debate as to method of choice for the treatment of patients with hemorrhaging in the digestive tract. This debate is particularly heated with respect to gastroduodenal bleeding since this is encountered the most often and its causes are very diverse.

The difficulty of deciphering the causes and sometimes the location of such hemorrhages, the serious condition of the patient because of the blood loss compel us to consider the development of standard tactics for the entire group of gastroduodenal hemorrhages directed toward stopping the bleeding and stabilizing hemodynamic indices. The solution to this problem determines, in essence, the medical tactics.

The seeming simplicity of the solution (any hemorrhage is the prerogative of a surgeon and requires surgery) encounters specific conditions in each concrete case and contradictions between what is necessary and what is impossible (little justified or unjustified risk). Such conditions and contradictions include: the serious condition of the patient who has lost such blood and extremely critical surgical intervention in this situation; the inability to stop bleeding by virtue of the particular nature of the cause that caused it (incompressible tumor of the stomach, pancreas, etc.); unreliability of surgical methods of arresting bleeding in the presence of some forms of pathology (erosive gastritis, erosion of varicose esophageal veins) and, finally, bleeding that does not respond to surgical management (hemorrhagic diathesis, hemophilia, and others).

In spite of this, we must agree with Yu. Yu. Dehnel'de, that "all patients with gastroduodenal bleeding should be referred to the surgical department and they should be considered as subjects whose life is in immediate danger." S. I. Spasokhukovskiy believed that all patients with

Polymers and Polymerization

USSR

UDC 54-171:541.64+661.718.1

BYL'YEV, V. A., LAPIN, M. S., and MUSLINKIN, A. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbutov, Academy of Sciences USSR

"Comparative Thermostability of Polymers of Acrylic and Some α -Substituted Acrylic Derivatives of Triphenylphosphine Oxide"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 71, pp 1801-1803

Abstract: The article describes results of a comparative estimate of the thermostability of polymers of acrylic, methacrylic and α -fluoroacrylic derivatives of triphenylphosphine oxide with allowance for the effect of isomerism in the structure of the initial monomers on the kinetics of polymer thermal decomposition. A comparison of polymers based on p-isomers and polyphenyl methacrylate indicates that thermal degradation of phosphorus-containing polymers proceeds more slowly and encompasses the higher temperature region, with poly-p-fluoroacryloylhydroxyphenyldiphenylphosphine oxide showing the least thermostability. A comparison of the character of the thermal and thermooxidizing decomposition of polymers based on o-, m- and p-isomers of α -fluoroacryloylhydroxyphenyldiphenylphosphine oxide shows that the decomposition of the o-derivative polymer proceeds at a lower temperature than for p- and m-derivative polymers.

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USSR

UDC 669.15-194.2:620.17

LAPIN, P. G., GULYAYEV, A. P., and UL'YANIN, YE. A., Central Scientific Research Institute for Ferrous Metals (TsNIIChEMMET)

"Effect of Alloy Components on the Properties of Stainless Precipitation Hardened Martensitic Steels at Low Temperatures"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972, pp 47-52

Abstract: The study concerns the effect of alloy components on the structure and properties of stainless precipitation-hardened martensitic steel at both room and below-zero temperatures. The experimental material was low carbon steel with 12% Cr and alternate contents of Ni, Ti, Cu, and Mo. In all steels under study nickel markedly decreases the temperatures of both the beginning and the end of martensitic transformation while Ti, Cu, and Mo hardly affect these temperatures. The amount of austenite in steels with various contents of alloy components is determined by their effect on the direct martensitic transformation temperature. Both the phase composition and the properties of the steels are a function of temperature changes in the α - β transformation region. The phase ratios may be varied over a wide range by heating

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USSR

LAPIN, P. G., et al, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972, pp 47-52

up to 600°C and alloying with Ni. The type of failure of the impact specimens may be changed from brittle to ductile with increased contents of Ni and Mo. High strength at both normal and low temperatures is achieved by alloying the steel with Ti and Mo. (4 illustrations, 2 tables, 1 bibliographic reference).

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USSR

UDC 669.14.013.8

BABAKOV, A. A., LAPIN, P. G., UL'YANIN, YE. A., USPEINSKAYA, I. K., and
FEDOROVA, V. I.,

"Influence of Nitrogen on the Properties of Chrome-Nickel-Manganese Steel With
Molybdenum at Low Temperatures"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],
No 77, Metallurgiya Press, 1970, pp 113-116

Translation: The influence of nitrogen on the mechanical properties of
000Kh20G10NGM2 steel is studied in the 20-253°C temperature range. It is demon-
strated that the limiting permissible quantity of nitrogen in the steel is 0.4%.
Further increases in the quantity of nitrogen cause a decrease in ductility and
impact toughness of the steel at low temperatures.

Introduction of nitrogen to the steel produced an increase in strength at
20°C to σ_b 850 Mn/m² (85 kg/m²); $\sigma_T \geq 450$ Mn/m² (45 kg/mm²). 2 figures.

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Acc. Nr: AP0051920

Ref. Code: UR 0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i
Meditsiny, 1970, Vol 69, Nr 2, pp 52-55

THE CONTENT OF ZINC IN ENDOCRINE AND EXOCRINE TISSUES OF THE
PANCREAS

Ya. A. Lazaris, V. I. Lapin, T. V. Palmina, V. I. Korchin
Karaganda Medical Institute

The authors showed that in the pancreatic endocrine tissue of mammals, whose Langerhans islets are not anatomically separate, quantitative determination of zinc can be carried out without their excision from the exocrine tissue. It was established that the zinc content in the whole pancreas amounted to 18 µg/g while in the islet tissue it amounted to 356 µg/g, i. e., 74 times as much. These findings lend support to the previous reports of Ya. A. Lazaris et al, who demonstrated an important role of the zinc blocking of β-cells of Langerhans islets in pathogenesis of various experimental models of diabetes.

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19820403

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Petroleum Processing Technology

USSR

UDC 665.637.6:621.892.096/.097

BLAGOVIDOV, I. F., SHOR, G. I., TROFIMOVA, G. L., and LAPIN, V. P.

"Some Aspects of the Development of Contemporary Motor Oils"

Moscow, Neftepererabotka i Neftekhimiya, No 10, 1973, pp 29-32

Abstract: Compatibility of alkyl salicylate, sulfonate, succinimide, and dithiophosphate additives was investigated as well as their pickup by oils of various chemical compositions. On the basis of experimental results effective motor oils have been developed for the current high performance engines, containing a selection of contemporary additives with consideration of maximum utilization of their functional properties.

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USSR

UDC 669.243 + 669.337:669.052

MASH'YANOV, N. P., KOLESNIKOV, B. I., LAPIN, Yu. D., MECHNEV, V. V., RYABOV, V. G.,
VASIL'YEV, M. G., and SHUSTITSKIY, V. D.

"Certain Problems of the Production of Copper and Nickel From Complex Grade
Sulfides"

Moscow, Tsvetnyye Metally, No 10, Oct 70, pp 11-14.

Abstract: Difficulties encountered in the production of copper and nickel from sulfide copper-nickel ores are discussed. Procedures used in the USSR for separating these metals as well as cobalt are evaluated, and the necessity for the reconstruction of present copper-nickel production conditions is stressed. A plan is recommended which would involve the parallel production of copper and nickel with an exchange of semi-products between them. A schematic production chart and a table containing the compositions of basic materials used in processing sulfide copper-nickel ores are presented. The recommended plan would ensure the recovery of 98-99% Cu, 96-97% Ni, and 85-87% Co, and would increase the recovery of noble metals and platinum. The plan involves a substantial increase in the use of oxygen, not only for melting but also for converting ores and concentrates. The plan would also make it possible to utilize more complete-

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USSR

MASH'YANOV, N. P., et al, Tsvetnyye Metally, No 10, Oct 70, pp 11-14

ly the crude sulfides, and to obtain pig-iron and construction materials from the high-ferrous converter mattes.

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USSR

UDC 612.821.6+612.86

LAPINA, I. A., Physiology Department imeni I. P. Pavlov, Institute of
~~Experimental~~ Medicine, USSR Academy of Medical Sciences, Leningrad

"Conditioned Reflexes to Hypothalamic Nuclei Stimulation in Dogs with a
Previously Elaborated Autostimulation Reaction"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23,
Vyp 5, Sep/Oct 73, pp 947-952

Abstract: Conditioned reflexes to direct stimulation of the hypothalamic nuclei were elaborated in seven dogs with implanted bipolar electrodes. In five of the animals an autostimulation reaction had previously been formed using the same brain zone. The conditioned stimulus was a 500 cps signal accompanied by the animal's paw passively pressing a pedal and by stimulation of the anterior and lateral hypothalamic nuclei with a 25 to 45 microamp current. A meat and rusk powder was used as an unconditioned stimulus. Fewer repetitions were required to establish the conditioned reflex in the dogs with previous autostimulation reactions, and the time spent with the paw on the pedal progressively shortened. The reflex was difficult to extinguish. Reaction to outside stimuli such as the orientation reflex was absent during most of the stimulation, even reaction to cats, birds and frogs. This

1/2

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LAPINA, I. A., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov,
Vol 23, Vyp 5, Sep/Oct 73, pp 947-952

finding was explained using a model hypothesis on competitive types of behavior. The autostimulation was said to permit the formation of time linkages and new conditioned reflex organization with specific properties of independent functional dominance. One functional system may block another through the chemical sensitivity of synapses, limbic structures and the hypothalamic nuclei.

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172 018 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--PREPARATION OF AGGREGATE FROM A METALLURGICAL SLAG -U-
AUTHOR--(04)-YAKUNIN, O.A., LAPINA, V., RUTUS, M.V., LIKHTERMAN, YA.N.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 267,438
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATSY, TOVARNYE INAKI 1970,
DATE PUBLISHED--01APR70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--METALLURGIC SLAG, METAL CRYSTALLIZATION, METAL INCLUSION,
METAL COOLING, METAL INGOT, METALLURGIC PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1072 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0130107
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV79

CIRC ACCESSION NO--AA0130107

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AGGREGATE WAS OBTAINED FROM METALLURGICAL SLAG BY CRYSTG. THE SLAG MELT AND COOLING THE HARDENED SLAG WITH WATER. TO GUARANTEE THE INCREASED RECOVERY OF METALLIC INCLUSIONS FROM THE SLAG, SOLIDIFICATION OF THE SLAG MELT TOOK PLACE IN BULK AND THE HARDENED INGOT WAS SUBMERGED IN WATER TO BE COOLED, PRIOR TO BREAKUP INTO AGGREGATE. FACILITY: STATE ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF HIGHWAYS.

UNCLASSIFIED

USSR

SLOBODCHIKOVA, R. I., LAPINA, Z. S.

"Random Balance at Many Levels"

Voprosy Kibernetiki. Nekotoryye Voprosy Planirovaniya Eksperimenta [Problems of Cybernetics. Certain Problems of Experimental Planning], Moscow, 1972, pp 40-55 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1975, Abstract No 6V292, by the authors).

Translation: One algorithm for separation of significant factors (qualitative and quantitative) in multilevel random balance plans is suggested.

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USSR

LAPIN'SH, Ya. K.

"Minimization of Probabilistic Automata, Looked Upon as Finite Information Media"

Avtomatika i vychisl. tekhn. [Automation and Computer Technology], 1973, No 1, pp 7-9 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V401 by A. Muchnik)

Translation: Let Σ be a finite alphabet, $F_1, F_2 \subseteq \Sigma^*$ and $F_1 \cap F_2 = \emptyset$, while B is a finite deterministic automaton with input alphabet Σ with n states with two sets F_1 and F_2 of states distinguished, $F_1 \cap F_2 = \emptyset$, s_0 be the initial state, ϕ be the transfer function and $\phi(s_0, x) \in F_i$, if $x \in F_i$ ($i=1,2$).

The following problem is studied. Construct the minimal (according to the number of states) probabilistic automaton U with rational transition probabilities, initial state s , input alphabet Σ , point of intersection $\lambda=1/2$, radius of isolation δ ($\delta > 0$ is a rational number), sets of states distinguished G_1 and G_2 , $G_1 \cap G_2 = \emptyset$, such that the probability $p(s_1, x)$ of a transition to the set of states G_i for any word $x \in F_i$ ($i=1,2$) is greater than or equal to $1/2 + \delta$. An effective procedure is presented, allowing

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USSR

LAPIN'SH, Ya. K., *Avtomatika i vychisl. tkehn.*, 1973, No 1, pp 7-9

the minimum probabilistic automaton U with the required properties to be found for all $\delta > 0$ except, possibly, for a finite number. The proof is presented by methods of constructive mathematics.

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USSR

UDC [537.886+537.311.33]:[537+535]

KALINAUSKENE, B. I., LAPINSKAS, I. I., POZHELA, YU. K., and SHIMOLITE, YE. A.

"Investigation of Electrical Conductivity of Fine-Grained Semiconductor Systems in a Constant and Microwave Field"

Lit. fiz. sb. (Collection of Lithuanian Works on Physics), 1971, 11, No 2, pp 263-268 (summaries in Lithuanian and English) (from Rub-Pfizika, No 10, Oct 71, Abstract No 10YE660 by authors)

Translation: The authors investigated the resistance of fine-grained Ge and Si systems as a function of constant and microwave field intensity. The resistance of such systems decreases with an increase in both the constant and microwave field applied to them.

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USSR

UDC: 519.2

LAPINSKAS, R.

"Asymptotic Expansions for the Density of a Sum of Multidimensional Random Quantities Joined Into a Nonhomogeneous Markov Chain"

Lit. mat. sb. (Lithuanian Mathematics Collection), 1972, 12, No 1, pp 155-163 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V39 [author's abstract])

Translation: Two theorems on asymptotic expansions are proved (one assuming the existence of s conditional moments, the other with unconditional moments) which generalize the one-dimensional results of V. Statulyavichus and the author's case of independent component terms.

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USSR

LAPINSKAS, R.

"Local Limit Theorem and Asymptotic Expansions in the Multidimensional Case"

Lit. mat. sb. [Lithuanian Mathematics Collection], Vol 11, No 4, 1971,
pp 817-831, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972,
Abstract No 3 V28 by the author).

Translation: The local theorem is proven for non-identically distributed
random vectors $\{\xi_m\}_{m=1}^{\infty}$, $\sum_{m=1}^{\infty} p_m(x) = 1$, having densities $p_m(x)$, $m = 1, 2, \dots$. As a result,
the case

$$\tilde{\sigma}_m^k C_m < M, m = 1, 2, \dots \text{ where } \tilde{\sigma}_m = N|\xi_m|^2, \\ p_m(x) < C_m < \infty.$$

Furthermore, an even estimate of the residual term is produced in the asymp-
totic expansion for the density of the sum.

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USSR

LAPINSKAS, R.

"Local Limit Theorems for the Densities of Sums of Random Quantities Connected into a Heterogeneous Markov Chain"

Lit. Mat. Sb. [Lithuanian Mathematics Journal], 1973, Vol 13, No 2, pp 91-107 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V40)

Translation: This work proves 7 limit theorems (with dimensionality of random quantities $k \geq 1$), including for identically (normally) distributed random quantities, and also for the condition $M|X_m|^{2+\delta} < \infty$, $m = 1, \dots, n$, or $|X_m| \leq C^{(n)}$, $m = 1, \dots, n$. Furthermore, the case of a homogeneous chain is studied.

Author's view

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UDC: 519.21

USSR

LAPINSKAS, R.

"On the Maximum of a Homogeneous Normal Field"

Lit. mat. sb. (Lithuanian Mathematics Collection), 1971, 11, No 2, pp 281-288
(from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V152)

Translation: Two theorems are proved under certain conditions imposed on the homogeneous normal random field $\eta = \eta(x_1, \dots, x_n)$ with $M\eta = 0, D\eta = 1$. We give one of these theorems.

Theorem 1. for any $\epsilon > 0$ there is almost certainly a (random) $x_0(x_0 < \infty)$ such that for all $x > x_0$

$$\left| \max_{\substack{x_i \in [0, x] \\ i=1, n}} \eta(x_1, \dots, x_n) - \sqrt{2n \ln x} \right| < \frac{(1 + \epsilon) \ln \ln x}{\left(\frac{2n}{(n+1)^2 \ln x} \right)^{1/2}}$$

Author's abstract.

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USSR

UDC 519.2:621.391

CHIGAR'KOV, G. K., and LAPINSKAYA, YE. V.

"Spectrum of Orthogonal Signals Coinciding in Shape With Legendre Polynomials"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Proceedings of the Moscow Institute of Radio Engineering, Electronic, and Automation), No 47, 1970, pp 226-230 (from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V224, by Ya. Kogan)

Translation: The signals examined are of the form

$$S_n(t) = \begin{cases} P_n\left(\frac{t}{T}\right) & \text{when } -T \leq t \leq T, \\ 0 & \text{when } |t| > T, \end{cases}$$

where $P_n(x)$ is a n -th-order Legendre polynomial. The authors derive a recursive formula for spectral densities based on the recursive relation for Legendre polynomials:

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$$S_n(\omega) - \frac{2n-1}{j\omega T} S_{n-1}(\omega) - S_{n-2}(\omega) = 0,$$

USSR

CHIGAR'KOV, G. K., and LAPINSKAYA, YE. V., Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki, No 47, 1970, pp 226-230

where

$$\tilde{S}_n(\omega) = \int_{-T}^T S_n(t) e^{-j\omega t} dt.$$

By solving this recursive equation, the authors derive explicit formulas of spectral densities for orthogonal systems of even and odd order

$$S_{2n}(\omega) = \frac{2T(-1)^n}{\sqrt{1 - \left(\frac{4n-1}{2\omega T}\right)^2}} \left[T_{2n} \left(\frac{4n-1}{2\omega T} \right) \left(\frac{\sin \omega T}{\omega^2 T^2} + \frac{\cos \omega T}{\omega T} \right) + V_{2n-1} \left(\frac{4n-1}{2\omega T} \right) \frac{\sin \omega T}{\omega T} \right];$$

$$\tilde{S}_{2n+1}(\omega) = \frac{2T(-1)^n}{\sqrt{1 - \left(\frac{4n+1}{2\omega T}\right)^2}} \left[V_{2n+1} \left(\frac{4n+1}{2\omega T} \right) \times \right. \\ \left. \times \left(\frac{\sin \omega T}{\omega^2 T^2} + \frac{\cos \omega T}{\omega T} \right) + T_{2n} \left(\frac{4n+1}{2\omega T} \right) \frac{\sin \omega T}{\omega T} \right].$$

Here $T_k(x)$ and $V_k(x)$ are first- and second-order Chebyshev polynomials.

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USSR

UDC 621.391.8:519.27

CHIGAR'KOV, G. K., LAPINSKAYA, YE. V.

"Spectrum of orthogonal signals coinciding with respect to shape with Legendre Polynomials"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Works of Moscow Institute of Radio Engineering, Electronics and Automation), 1970, vyp. 47, pp 226-230 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A99)

Translation: An analytical formula is obtained for the spectral density of orthogonal signals coinciding with respect to shape with Legendre polynomials. This formula makes it possible to express the spectral density of the signals in terms of tabulated functions. This greatly simplifies the calculations connected with analysis of the complex signal spectrum and the characteristics of the systems where these signals are used.

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USSR

UDC 62-507

LAPINYSH, Ya. K.

"Minimization of Probabilistic Automata Representing Finite Information Media"

Riga, Avtomatika i Vychislitel'naya Tekhnika, No 1, Jan/Feb 73, pp 7-9

Abstract: The problem of representing finite information media by probabilistic automata with a minimum number of internal states at a fixed radius of isolation δ is considered mathematically from a structural standpoint. It is shown that the problem has a solution for all δ , with the possible exception of a finite number of values.

1/1

USSR

UDC 537.312.62

ARSHINOV, V. I., DMITRIYEVA, S. K., KANDYBA, P. Ye., KOMAROVSKIKH, N. I.,
LAVRISHCHEV, V. P., LAPIN, G. M., MAZITOV, R. K.

"Film Cryotrons Based on Au-Pb Intermetallic Compounds"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Technology. Scientific and Technical Collection. Microelectronics), 1971, vyp. 3(29), pp 92-97 (from RZh-Radiotekhnika, No 12, Dec 71, Abstract No 12D691)

Translation: The paper describes the manufacturing technique and results of an experimental study of a new type of film cryotron having a diode of intermetallic compounds of gold with lead, and a gate and passive lines of lead. Basic electrophysical indices for the proposed type of cryotron are higher and less sensitive to deviations from given technological conditions than for conventional tin-lead cryotrons. Résumé.

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USSR

UDC 621.396.6-161.48(089.8)

ARSHINOV, V. I., DMITRIYEVA, S. K., KANDYBA, P. Ye., KOMAROVICHENKO, N. I.,
LAVRISHCHEV, V. P., LAPIN, G. M., MAZITOV, R. K., OLENIKOTA, V. A.

"A Method of Making Diodes for Thin-Film Cryotrons"

USSR Author's Certificate No 297129, filed 16 Oct 69, published 6 Apr 71
(from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 14Y368 P)

Translation: The proposed method for making diodes for thin-film cryotrons is based on sequential application of films of gold and a superconducting metal. As a distinguishing feature of the patent, a lead film with subsequent annealing at a temperature of 100-120°C is used as the superconducting metal to improve the technique of making the cryotronic integrated microcircuits, to increase speed, and to make the output signal more reliable. Resumé.

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USSR

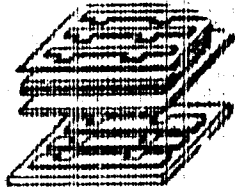
UDC: 621.3.013.7

ARSHINOV, V. I., BERKOVICH, S. Ya., KASATKIN, V. G., LAPIN, G. M., MAZITOV, R. K.

"A Cryotron Thin-Film Integrated Circuit"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyya Obratsy, Tovarnyye Znaki, No 30, 1970, Soviet Patent No 282433, Class 21, filed 10 Jun 69, p 61

Abstract: This Author's Certificate introduces a cryotron thin-film integrated circuit which contains a shielding film of superconductive material, insulating layers, and layers with cryotrons and hook-up elements. As a distinguishing feature of the patent, the possibility of short circuits between elements through the shielding film is reduced and manufacturing technology is simplified by breaking up the shielding film into sections which are electrically insulated from each other and are located on different sides of the layers which contain the cryotrons and the hook-up elements.



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USSR

UDC: 621.310.57

ARSHINOV, V. I., DMITRIYEVA, S. K., KANDYBA, P. Ye., KOPALOVSKIKH, N. I.,
LAVRISHCHEV, V. P., LAPIR, G. M., MAZITOV, R. K., OLEYNIKOVA, V. A.

"A Method of Making Diodes for Thin-Film Cryotrons"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 9, Mar 71, Author's Certificate No 297129, Division II, filed 16 Oct 69,
published 2 Mar 71, p 176

Translation: This Author's Certificate introduces a method of making diodes
for thin-film cryotrons. The procedure is based on sequential application
of gold and superconducting metal films. As a distinguishing feature of the
patent, the technology of making cryotron integrated circuits is improved
and the speed and output signal voltage of the cryotrons are increased by
using a lead film as the above-mentioned metal with subsequent annealing at
100-120°C.

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USSR

UDC: 681.325.63

BERKOVICH, S. Ya., LAPIR, G. M.

"A Decoder Based on Cryotrons"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztzy, tovarnyye znaki, No 9, Mar 71, Author's Certificate No 297130, Division H, filed 21 Jun 69, published 2 Mar 71, p 176

Translation: This Author's Certificate introduces a decoder based on cryotrons, each controlling channel containing controlling lines and a closed number-line loop. As a distinguishing feature of the patent, the decoder is designed for improved reliability, increased speed, extended logical possibilities and simplified manufacture. Each decoding channel is equipped with a shift register based on crytron circuits. The output of this shift register is connected to the number-line loop, and the inputs are connected to the controlling lines. Some of these inputs are connected in a coordinate sampling system.

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USSR

UDC: 621.315.592

GOLDOBIN, I. S., DOBAIN, A. S., KURKOSOV, V. D., LAPITSKAYA, G. A.,
PLESHKOV, A. A., PROZOROV, O. N., RIVLIN, L. A., SOLODKOV, K. F.,
and SHIL'DYAYEV, V. S.

"Quantum-Optical Integrated Circuits of GaAs"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol. 5, No. 1, 1971,
pp 170-172

Abstract: This brief communication offers compact information on quantum-optical logic circuits using integrated GaAs components, based on the stability of multi-coupled semiconductor lasers. Photographs of such laser modules are shown; these have electron-hole junctions formed by the diffusion method, and are made in the form of mesa structures consisting of injector sections with etched dividers 50 microns wide and about 5 microns deep, which isolate regions of nonuniform injection with a transfer resistance of about 15 ohms. The modules contain photoelectric converters, in the form of GaAs photodiodes, which transform optical pulses into electrical pulses with amplitudes of the order of 0.5 volts across a load of 50 ohms. Action of the modules is explained. The author expresses his gratitude to M. F. Stel'makh.

USSR

UDC 546.834*185.541.183.12

LAPITSKIY, A. N., and TIKAVYY, V. F., Belorussian State University imeni V. I. Lenin

"The Effects of Heat Treatment on the Ion-Exchange Properties of Zirconium Antimonate"

Minsk, Vestsi Akademii Navuk BSSR, Seryya Khimichnykh Navuk, No 5, 1971, pp 57-60

Abstract: The effects of heat treatment in the 60-1300° range on the ion-exchange properties of zirconium antimonate (ZS) with Sb/Zr = 0.53-4.13 were studied. ZS was prepared as described by the authors in earlier work (Vestn. BGU, No 3, 19, 1969). It was subjected to heat treatment in its E-form. As established by potentiometric titration with 0.1 N solutions of NaOH + NaCl, KOH + KCl, and CsOH + CsCl and determinations of exchanges on contact with an 0.5 N AgNO₃ solution, the exchange capacity of ZS decreased with increasing temperatures of heat treatment, decreasing to the greatest extent after treatment at temperatures > 300° and reaching zero after treatment at 900°. The selectivity of ZS towards Ag, Tl, NH₄, Li, Na, K, Rb, and Cs cations increased after heat treatment at temperatures < 300° and decreased after heat treatment 1/2

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USSR

LAPITSKIY, A. N., and TIKAVYY, V. F., Vestsi Akademii Navuk BSSR, Seryya
Khimichnykh Navuk, No 5, 1971, pp 57-60

ment at temperatures $> 300^{\circ}$. At temperatures $< 300^{\circ}$ weakly acidic
innogenic groups of ZS condensed, whereas at temperatures $> 300^{\circ}$ both
weakly and strongly acidic ionogenic groups underwent condensation.

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Polymers and Polymerization

USSR

UDC 678.027.74

VORONIN, A. A., and LAPITSKIY, V. A., Ukrainian Scientific Research Institute of Plastics, Donetsk

"Processing of Rapidly Solidifying Epoxy Compositions by the Method of Die Casting"

Kiev, Khimicheskaya Tekhnologiya, No 3 (63), May-Jun '72, pp 22-24

Abstract: It has been shown to be possible to process epoxy casting compositions (and epoxy press-materials) by means of pressure casting using the casting machines for reactive resins (Japanese made models "Mutsuda" and "Meiki"). This process is suitable for die casting of a variety of products both for industrial and consumer application, or everyday consumption.

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USSR

UDC: 620.171.2

ŠKLYAROV, N. M., KONONCHUK, N. I., ISHCHENKO, I. I., POGREBNYAK, A. D.,
LOZITSKIY, L. P., SHIPIL', V. Ya., LAPITSKIY, Yu. A., SINAYSKIY, B. N.,
KUFAYEV, V. N., Kiev

"Determination of Durability of Heat-Resistant Alloys in Unstable Operating Modes Considering Brief Overloads"

Kiev, Problemy Prochnosti, No 3, Mar 73, pp 100-104.

Abstract: The specific features of application of the linear hypothesis of addition of damage during calculation and accelerated experimental determination of the guaranteed durability of parts operating with brief overloads during individual stages in the program of unstable loading with static and variable loads are studied, as well as problems of adjustment of the corresponding calculation characteristics for heat-resistant alloys. The concept developed by the authors is in that the share of durability expended at any moment is determined by successive addition of its parts for stages of the program under the combined influence of loads and temperatures in a quasi-stable mode for each stage; the sets of long-term static strength and endurance characteristics are utilized, considering the influence of the loading prehistory and the corresponding limiting curves for various

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USSR

SKLYAROV, N. M., et al, Kiev, Problemy Prochnosti, No 3, Mar 73, pp 100-104

temperatures and durabilities. The spectrum of loads is studied in combination with the sequence of their application, i.e., in time.

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USSR

UDC 646.522

ISAYKIN, A. S., CRIBKOV, V. N., SHCHESTANOV, B. V., SILATEV, V. A., and
LEVINSKAYA, M. KH.

"Growth of Filamentary Aluminum Oxide Crystals During Reduction of Aluminum Oxide"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan/Feb 73, pp 110-119

Abstract: Thermodynamic analysis of aluminum oxide reduction by hydrogen and carbon showed that Al_2O produced the highest pressure among the gaseous reaction products and that Al_2O was primarily responsible for the mass transfer in the gaseous phase. A participation of aluminum vapors in this process was determined by the pressure of CO vapors within the reduction zone of alumina. Reduction of Al_2O_3 by C and H produced mainly Al_2O and Al, and the pressure of Al_2O was three times as high when the reduction was accomplished by carbon. A difference in temperatures between reduction and condensation zones of the order of 200-300°C produced a supersaturation equaling 10. Corundum whiskers were successfully grown in the presence of hydrogen when the difference in temperature between reduction and condensation zones was 60-80°C. A rapid growth of whiskers was observed at 2000-2000°C in the reduction zone when this temperature difference amounted to 1500°C and the

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USSR

ISAYKIN, A. S., et al, Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan/Feb 73, pp 112-119

supersaturation was $S \approx 5$. The diameter of whiskers in this case was $10-30 \mu$ and they were 30-25 μ m long. When the difference in temperature between zones was 200-220°C, the whiskers were 1-10 μ m in diameter and 5 μ m long, but they had many defects. The whiskers were of irregular shape and very small when the temperature difference was 250-280°C. A condensation of aluminum droplets in the growing zone of whiskers led to the conclusion that the initial crystallization centers originated in these droplets and the growth of corundum whiskers in this process took place according to the vapor - liquid - solid phase mechanism.

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USSR

UDC 634.539.376

2

KOZYRSKIY, G. YA., KONONENKO, V. A., KULKOVA, O. M., IRVITSEH, V. V., MOISEVICH, N. S., and ORZHITSKAYA, L. K., Institute of Metal Physics, Academy of Sciences Ukrainian SSR, and Ukrainian Scientific Research Institute of Special Steel

"Durability and Substructure of a Heat-Resistant, Precipitation-Hardened Alloy Subjected to Ultrasonic Treatment"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol. 35, No. 4, 1973, pp 667-670

Abstract: The effect of ultrasonic irradiation on the structure and durability of KhN77TiR industrial alloy was studied on samples quenched after eight hours at 1080°C, which were subjected to irradiation at 700°C with ultrasonic oscillation amplitude varied between 10 and 17 millimicrons. After irradiation the samples were aged at 700°C for one or two hours and then creep tested at 700°C under a load of 46 kg/mm². It was determined that ultrasonic treatment of this alloy promotes a more uniform distribution of the carbide phase, increases ductility owing to removal of carbide from the grain boundaries, blocks dislocation sources, and intensifies aging in weak areas. The result is increased durability and decreased creep rate. 2 figures, 1 table, 4 bibliographic references.

1/1

USSR

UDC: 620.17.171

KONONCHUK, N. I., AKIMOV, L. M., VASIL'YEV, B. N., LAPIZSKIY, YU. A.,
BELYAYEV, M. S., BICHUTSKAYA, O. V., KOPYLOV, A. A., TIRKUMIROVA, V. A.,
Moscow

"Study and Evaluation of the Kinetics of Fatigue Rupture of Heat-Resistant Alloys"

Kiev, Problemy Prochnosti, No 11, 1970, pp 19-23

Abstract: The results of an investigation of the fatigue resistance of heat-resistant alloys with symmetrical and asymmetrical loading cycles show significant and varied sensitivity to asymmetry in the loading cycle, depending on the type of alloy and test mode (temperature, number of loading cycles, etc.). This paper studies the kinetics of the development of fatigue cracks in heat-resistant alloy on the basis of the actual endurance characteristics with symmetrical and asymmetrical loading cycles. The process of specimen rupture was divided into two stages: the stationary stage before formation of the main crack and the nonstationary stage of development of the main crack to a certain depth, for example 10% of the

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USSR

KONOGHUK, N. I., AKIMOV, L. M., VASIL'YEV, B. N., LAPITSEY, Yu. A.,
BELYAYEV, M. S., BICHUTSKAYA, O. V., KOPYLOV, A. A., TIKHOMIROVA, V. A.,
Moscow, Kiev, Problemy Prochnosti, No 11, 1970, pp 19-23

specimen thickness. A formula is produced for the "viability factor" which, in combination with calculation of the values of $\Delta\sigma_1$ and t_{tr} , can describe the kinetics of development of fatigue cracks in various alloys. This factor expresses the sensitivity of the alloy to the development of the fatigue crack on the basis of the experimental characteristics of endurance of real alloys.

2/2

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UDC 620.171.2

USSR

SKLYAROV, N. M., KONONCHUK, N. I., ZHUKOV, S. L., ZHUKOV, N. D., VASIL'EV, B. N., AKIMOV, L. M., ~~LARITSKIY, Yu. A.~~, BELYAYEV, M. S., KRIVONOGOV, G. S., ISHCHEKNO, I. I., POGREBNIYAK, A. D., and KUFAYEV, V. N. (Moscow, Kiev)

"Estimating the Heat Resistance of Heat-Resistant Alloys Under Actual Operating Conditions"

Kiev, Problemy prochnosti, No 1, 1971, pp 13-21

Abstract: Problems concerned with estimating the endurance of heat-resistant materials under unstable loading conditions are analyzed. A method is suggested for producing and using "secondary" endurance characteristics, increasing the accuracy of estimation and calculation of guaranteed durability under operating conditions and forced equivalent loading modes. These secondary characteristics represent the dependence of the durability of materials on combinations of preceding programmed and subsequent stationary loads in various proportions. The formula of linear addition of damage applies. The secondary characteristics are produced by accelerated testing over limited test periods with extrapolation to the area of increased durability.

1/1

USSR

UDC 539.4

GINDIN, A. I., LAPYASHVILI, E. S., NASKIDASHVILI, I. A., NERLYUDOV, I. M.,
(Khar'kov, Tbilisi)

"The Bauschinger Effect in Annealed and Irradiated Titanium"

Kiev. Problemy Prochnosti, No 8, 1972, pp 118-120.

Abstract: Results are presented from studies of the influence of the degree of deformation hardening on Bauschinger effect of annealed specimens of titanium following neutron bombardment in a low-temperature channel in a reactor with programmed loading following bombardment. It is demonstrated that irradiation and subsequent programmed loading help to increase the deformation resistance of titanium specimens to both unidirectional and sign-changing loads.

1/1

Acc. Nr.

AP0041856

Abstracting Service:

CHEMICAL ABST.

4/70

Ref. Code

UR0366

89695n Reactions of α -chlorinated ethers in the presence of zinc. X. Synthesis of selenoacetals. ~~Lapkin, I. I.; Pavlova, N. N.; Pavlov, G. S. (Perm. Gos. Univ., Perm, USSR). Zh. Org. Khim. 1970, 6(1), 71-4 (Russ).~~ The reaction of RCH-Cl(OMe) with R'SeH in the presence of Zn in abs. Et₂O gave 50-68% RCH(SeR')₂ (I). The mechanism of the reaction was described earlier (Lapkin, I. I.; 1967). The oxidn. of I with HNO₃ gave 60-5% R'SeO₂H.HNO₃. CPER

MLL

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REEL/FRAME

19751737

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Acc. Nr **AP0041540** Abstracting Service:
CHEMICAL ABST.

4170

Ref. Code
UR 0366

89983e Reactions of α -chlorinated ethers in the presence of zinc. IX. Synthesis of dihydroxy- and dialkoxydiphenylmethanedicarboxylic acid esters. Lapkin, I. I.; Orlova, I. D. (Perm. Gos. Univ., Perm, USSR). *Zh. Org. Khim.* 1970, (1), 68-71 (Russ). The reaction of 2,4-RR' 1 C₆H₃CO₂H (I) with ClCH₂OMe in the presence of Zn in Et₂O gave 30-45% CH₂-(C₆H₃RR' 1 (CO₂H)-2,4,5)₂. I (R = R 1 = H) gave no reaction. The mechanism of the analogous reactions of ClCH₂OMe in the presence of Zn with nonaromatic compds. was discussed earlier (Lapkin, I. I.; 1967). CP/R

new

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REEL/FRAME

19751408

Acc. Nr:

AP0041539

Abstracting Service:

CHEMICAL ABST.

4/70

Ref. Code:

U R 0366

89990e Reactions of halometal alcoholates. XXVI. Thermal stability of halometal alcoholates containing biphenyl and phenoxyphenyl radicals. Lapkin, I. I.; Sorina, T. A. (Perm. Gos. Univ., Perm, USSR). *Zh. Org. Khim.*, 1970, (1), 14-6 (Russ). The reaction of $p\text{-PhC}_6\text{H}_4\text{MgBr}$ (I) (prepd. *in situ*) with $(\text{CO}_2\text{R})_2$ gave $p\text{-PhC}_6\text{H}_4\text{C}(\text{OEt})(\text{OMgBr})\text{CO}_2\text{R}$ which are thermally unstable and decomp. at $36\text{-}87^\circ$ to give $p\text{-PhC}_6\text{H}_4\text{CH}(\text{OMgBr})\text{CO}_2\text{R}$ (II). The hydrolysis of I with 10% AcOH and *datu.* in *vacuo* gave 30-6% $p\text{-PhC}_6\text{H}_4\text{CH}(\text{OH})\text{CO}_2\text{R}$ (R is Et, Pr, iso-Pr, Br, iso-Bu, or CH_2CHCH_3). The reaction of I with $(\text{CO}_2\text{R})_2$ carried out in Et_2O contg. 2% H_2O gave $p\text{-PhC}_6\text{H}_4\text{CO}_2\text{R}$.

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mcw

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REEL/FRAME
19751407

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--NEW SYNTHESIS INVOLVING ORGANIZINC COMPOUNDS, VI. SYNTHESIS OF BETA
HYDROXY KETONES, BETA KETO ALDEHYDES, AND GAMMA CHLORID BETA ALKOXY
AUTHOR--(02)-LAPKIN, I.I., SAYKULOVA, F.G.

L

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG.M. 1970, 6(3), 450-2

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, ORGANIZINC COMPOUND, KETONE, ALDEHYDE,
CHLORINATED ORGANIC COMPOUND, MOLECULAR STRUCTURE, HETEROCYCLIC NITROGEN
COMPOUND, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1667

STEP NO--UR/0366/70/006/003/0450/0452

CIRC ACCESSION NO--AP0112661

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--30JCT70

CIRC ACCESSION NO--AP0112661

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDENSATION OF RCH₂NBR(COCH
 SUB₂ R (I) (PREPD. IN SITU) WITH (CLCH SUB₂) O GAVE RCH₂CH SUB₂ OCH SUB₂
 CL)CO CH SUB₂ R WHICH WAS DECOMP. WITH AQ. HCL SOLN. TO RCH₂CH SUB₂ OH
 COCH SUB₂ R (R EQUALS ME, ET, PR, OR BU). THE REACTION OF I WITH CHCL
 SUB₂ OME GAVE RCH(CHCLOME)COCH SUB₂ R WHICH DECOMP. TO RCH(CHOI)COCH
 SUB₂ R (II). THE REACTION OF II WITH O,2 SUB₂ N C SUB₆ H SUB₄ NH SUB₂
 GAVE THE CORRESPONDING DISUBSTITUTED BENZO,1,4, DIAZEPINES (III) (M.
 WEISSENFELS, ET AL., 1967). THE REACTION OF I WITH CH SUB₂ CLCHCLDR
 PRIME1 GAVE RCH(COCH SUB₂ R)CH(OH PRIME1)CH SUB₂ CL. FACILITY:
 PERM. GOS. UNIV., PERM. USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--NEW SYNTHESSES INVOLVING ORGANOZINC COMPOUNDS. VII. SYNTHESIS OF
ALPHA ALKOXYMETHYL SUBSTITUTED DICARBOXYLIC ACID ESTERS --U-
AUTHOR--(02)-LAPKIN, I.I., KOZLOVA, L.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3), 453-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOZINC COMPOUND, CHEMICAL SYNTHESIS, DICARBOXYLIC ACID,
ESTER, BROMINATED ORGANIC COMPOUND, CHLORINATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1668

STEP NO--UR/0366/70/006/003/0453/0454

CIRC ACCESSION NO--AP0112662

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--230C170

CIRC ACCESSION NO--A0112662

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF RO SUB2 CCH SUB2
CHBRCO SUB2 R WITH POWD. ZN GAVE RO SUB2 CCH SUB2 CH(ZNBRICO SUB2 R,
WHICH WITHOUT ISOLATION WAS REACTED WITH CLCH SUB2 OR PRIME1 TO GIVE
49-77PERCENT RO SUB2 CCH SUB2 CH(CH SUB2 OR PRIME1)CO SUB2 R.
SIMILARLY, BUO SUB2 CCH SUB2 CH(CH(OME)ME)CO SUB2 BU AND BUO SUB2 CCH
SUB2 CH(CH(OME)CHME SUB2)CO SUB2 BU WERE PREPD. FACILITY: PERM.
GOS. UNIV., PERM. USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--230070
TITLE--REACTIONS OF HALOMETAL ALCOHOLATES. XXX. SYNTHESIS OF STILBENES AND
1,4,DIARYL,1,3,BUTADIENES -U-
AUTHOR-(02)-LAPKIN, I.I., BORODINA, L.P.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(3), 472-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL SYNTHESIS, BUTADIENE, BENZENE DERIVATIVE, HYDROLYSIS,
GRIGNARD REACTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1674 STEP NO--UR/0366/70/006/003/0472/0474
CIRC ACCESSION NO--AP0112668

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0112668

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF PHCH SUB2 CH3 WITH RMGBR (R IS PH, 2,5,ME SUB2 C SUB6 H SUB3, 3,4,MB SUB2 C SUB6 H SUB3, 2,4,6,ME SUB3 C SUB6 H SUB2, 4-ETOC SUB6 H SUB4, 4-PROC SUB6 H SUB4, 4-BUCC SUB6 H SUB4, 2-PROC SUB6 H SUB4) GAVE PHCH SUB2 CHROMGBR (I). THE HYDROLYSIS OF I WITH 10PERCENT HCL SOLN. GAVE THE CORRESPONDING CARBINOLS. IN THE PRESENCE OF HCO SUB2 ET OR (CO SUB2 ET) SUB2 AND 10PERCENT HCL I GAVE PHCH:CRH (II) IN 51-87PERCENT YIELDS. ANALOGOUSLY II (R IS 2,6,DIMETHYL,1,NAPHTHYL) AND PHCH:CHCH:CHPH WERE ALSO PREPD. FACILITY: PERM. GOS. UNIV., PERM, USSR.

UNCLASSIFIED

USSR

UDC 547.254 + 547.27 + 547.279

LAPKIN, I. I., BOGOSLOVSKIY, N. V., and ZENKOVA, N. I."Selenoorganic Compounds. III. A new Synthetic Method for Selenides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (1964), No 9, Sep 72, pp 1972-1974

Abstract: In a continuation of their studies on the synthesis of selenides based on the reaction of formate esters with an equimolar mixture of bromo-magnesium carbinolates and selenophenoxides, the limits of the reaction were determined. The following compounds can be used in the synthesis: $\text{C}_6\text{H}_5\text{CH}_2\text{OMgBr}$, $\text{C}_6\text{H}_5\text{C}(\text{CH}_3)\text{OMgBr}$, $\text{C}_6\text{H}_5\text{C}(\text{CH}_3)_2\text{OMgBr}$, giving high yields of corresponding bromides when reacted with ethyl formate. When primary or secondary radicals are attached to the α -carbon atom (in respect to the phenyl ring), the reaction cannot take place, since such compounds have a tendency to dehydrate, forming styrenes which are easily polymerized.

1/1

1/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70
 TITLE--EFFICACY AND MECHANISM OF ACTION OF ANABOLYTIC STEROIDS IN DIABETIC
 ANGIOPATHIES -U-
 AUTHOR--(05)--YEFIMOV, A.S., LIMANSKAYA, G.V., LITVINENKO, A.F., LAPKO,
 L.I., BODNAR, P.N.
 COUNTRY OF INFO--USSR
 SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 81-85
 DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIABETES-MELLITUS, BLOOD VESSEL, EYE, ADRENAL GLAND,
 CARBOHYDRATE METABOLISM, LIPO METABOLISM, MINERAL, RETINA,
 ATHEROSCLEROSIS, HORMONE, PROTEIN, BLOOD SERUM, BLOOD PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3002/1889

STEP NO--UR/0504/70/042/006/0081/0035

CIRC ACCESSION NO--AP0129245

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--000CT70

CIRC ACCESSION NO--AP0129245

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO EVALUATE THE IMMEDIATE RESULTS OF MONTHLY USE OF NEROBOL (IN THE DOSE OF 10 MG DAILY) IN 106 PATIENTS WITH DIABETES MELLITUS COMPLICATED IN 49 PATIENTS WITH MACRO AND 42, WITH MICROCANGIOPATHIES THE AUTHORS STUDIED IN DYNAMICS THE INDICES OF CLINICAL SYMPTOMATICS, SPHIGMOGRAPHY OF THE LEG VESSELS, OPHTHALMOSCOPY OF THE EYE FUNDUS VESSELS, THE FUNCTIONAL CONDITION OF THE ADRENALS AND SOME ASPECTS OF CARBOHYDRATE, FAT AND MINERAL METABOLISM. THE POSITIVE CLINICAL EFFECT WAS OBSERVED IN THE MAJORITY OF PATIENTS (IN 34 OUT OF 39) WITH OBLITERATING ATHEROSCLEROSIS AND ONLY IN 5 OUT OF 42 PATIENTS WITH RETINOPATHY. A FAVOURABLE EFFECT OF NEROBOL ON SOME METABOLIC AND HORMONAL DISORDERS EXPRESSED ITSELF BY A COMPARATIVE INCREASE OF ALBUMIN SHARE IN THE PROTEIN SPECTRUM OF THE BLOOD SERUM, BY INCREASED CONCENTRATION OF INTRACELLULAR POTASSIUM, BY A DROP OF THE 11 OXICORTICOSTEROID LEVEL IN THE BLOOD PLASMA. NO SUBSTANTIAL CHANGES ON THE PART OF THE LIPID METABOLISM WAS MARKED. TEN PRELIMINARY RESULTS PROVE THE EXPEDIENCY OF USING NEROBOL AS A MEANS OF PATHOGENIC TREATMENT OF DIABETIC ANGIOPATHY. FACILITY: KLINICHESKIY OTDEL KIYEVSKOGO INSTITUTA ENDOKRINOLOGII I OBHENA VESHCHESTV.

UNCLASSIFIED

Coatings

VADIVASOV, D. G., KUBAYEV, K. YE., CHAYKA, B. I., and LAPKO,
P. N., Saratov Institute of Mechanization of Agriculture Inst
M. I. Kalinin; Institute of Problems of Material Science, Academy
of Sciences Ukrainian SSR

"Effect of Conditions of Plasma Spraying on the Cohesion Strength of Steel
Coatings"

Kiev, Poroshkovaya Metallurgiya, No. 9, Sep 70, pp 12-16

Abstract: This paper analyzes the possibility of using plasma spraying to increase the wear resistance and restore the worn surfaces of automotive and tractor parts. The basic factor determining the practical application of sprayed coats is their cohesion strength with the sprayed surface. In this case the cohesion strength of plasma sprayed steel coats was determined as a function of geometric and electric parameters of the process. Use was made of the UPU-3M plasma unit and high-carbon USA steel. Normalized 45 steel served as the backing material. The cohesion strength of the

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USSR

VADIVASOV, D. G., et al, Poroshkovaya Metallurgiya, No. 9, Sep 70, pp 12-16

plasma-sprayed steel coat was tested by the pin method and was found to be 2.5 to 3 times higher than that produced by gas flame and electro Metallizing. The recommended optimum conditions for plasma spraying of USV steel coats are: $L=120$ mm (spraying distance); $I=450$ amp, $V=30$ v, $Q=17$ l/min, $G=0.86$ m/min at a 1.8-mm wire diameter.

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1/3 036 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--FERROMAGNETIC RESONANCE AND NONLINEAR EFFECTS IN LITHIUM AND ZINC
FERRITE SINGLE CRYSTALS -U-
AUTHOR-(04)-YAKOVLEV, YU.M., VINNIK, M.A., RUBALSKAYA, E.V., LAPQVOK, B.L.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(3), 866-72
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--SINGLE CRYSTAL, FERROMAGNETIC RESONANCE, LITHIUM, FERRITE
CRYSTAL, CRYSTAL LATTICE STRUCTURE, MAGNETIC MOMENT, BORON OXIDE, LEAD
OXIDE, THERMAL EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0620 STEP NO--UR/0181/70/012/003/0866/0872
CIRC ACCESSION NO--AP0105600
UNCLASSIFIED

2/3 036

UNCLASSIFIED

PROCESSING DATE--19SEP70

CIRC ACCESSION NO--AP0105600

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STATIC MAGNETIC PROPERTIES WERE INVESTIGATED OF SINGLE CRYSTALS OF LI AND ZN FERRITE, LI SUB0.5(1 MINUS X)FE SUB0.5(1 MINUS X)ZN SUBX FE SUB2 O SUB4, WHERE X EQUALS 0, 0.1, 0.18, AND 0.24. THE CRYSTALS WERE GROWN FROM PBO PLUS B SUB2 O SUB3. ON VARIATION OF THE COMPN., THE LATTICE PARAMETER VARIES IN THE LIMITS (8.331-8.367) PLUS OR MINUS 0.001 A. THE MAGNETIC MOMENT WAS MEASURED BY THE METHODS OF WEISS AND FARADAY IN FIELDS IS SMALLER THAN OR EQUAL TO 10 KOE. REPLACEMENT OF PART OF THE TETRAHEDRAL FE AND LI IONS BY ZN IONS LEADS TO AN INCREASE IN THE MAGNETIC MOMENT AND DECREASE IN THE CURIE TEMP. OF THE COMPD. AT X EQUALS 0.24, CRYSTALS WERE OBTAINED WITH MAGNETIZATION, 4PI M EQUALS 4900 G AT NORMAL TEMP. THE EXPTL. DATA ON THE MAGNETIC MOMENT AND THE CURIE TEMP. ARE COMPARED WITH THE DATA OBTAINED IN TERMS OF THE MODEL OF NEEL AND GILIO. MEASUREMENTS OF THE FERROMAGNETIC RESONANCE OF THE SYNTHETIC CRYSTALS ALLOWED ONE TO DET. THE 1ST AND 2ND ANISOTROPY CONSTS. (K SUB1 AND K SUB2) AS FUNCTIONS OF TEMP. AND ALSO TO OBSERVE NONLINEAR 1ST ORDER PROCESSES AT COINCIDENCE OF THE RESONANCES AT 9.1 GHZ. THE RATHER WEAK DEPENDENCE OF K SUB1 ON THE COMPN. INDICATES THAT THE CONTRIBUTION OF THE I ION MECHANISM OF ANISOTROPY IN THE INVESTIGATED SOLID SOLNS. IS SMALL. TEMP. DEPENDENCES ARE GIVEN OF THE WIDTH OF THE RESONANCE LINE MEASURED FOR SPECIMENS OF 3 COMPNS. UNDER VARIOUS CONDITIONS OF POWER AND IN VARIOUS CRYSTALLOGRAPHIC DIRECTIONS. THE LIMITING FREQUENCY OF THE REGION OF COINCIDENCE IS PRACTICALLY INDEPENDENT OF THE ORIENTATION OF THE SPECIMEN IN THE (110) PLANE RELATIVE TO THE CONST. MAGNETIC FIELD.

UNCLASSIFIED

3/3 036 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0105600
ABSTRACT/EXTRACT--MIN. THRESHOLD POWER AT "NORMAL" TEMP. AT 9.1 GHZ FOR
THE SPECIMEN WITH X EQUALS 0.24 (4PI M EQUALS 4900 G) IS 30 MUW.

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UNCLASSIFIED

USSR

UDC 669.71.053.24

LAPPO, S. I., MEDVEDEV, G. V., and TAKENOV, T. D.

"Investigation of the Possibility Using Bauxites From Arkalyk (Turgay Ore Administration) and YuUBR (South Ural Bauxite Mine) Deposits for the Extraction of High-Alumina Intermediate"

Tr. Khim.-metallurg. in-ta. AN KazSSR (Works of Chemico-metallurgical Institute of Academy of Sciences Kazakh SSR), 1970, 14, pp 107-116 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3 G144 by authors)

Translation: The article presents results of a thermodynamic analysis of the possible chemical reactions during the production of high-alumina intermediate in order to obtain lime-alumina slag for steel refining. Thermographic analyses determine the temperature conditions for dehydration of bauxites from Arkalyk (Turgay Ore Administration) and South Ural Bauxite Mine deposits. The apparent and true specific gravities, fractional composition, bulk weight, porosity, and drum samples of the above-indicated bauxites are determined. High-alumina intermediate is obtained
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USSR

LAPPO, S. I., et al., Tr. Khim.-metallurg. in-ta. AN KazSSR ,
1970, 14, pp 107-116 (from RZh-Metallurgiya, No 3, Mar 71,
Abstract No 3 G144 by authors)

from lump bauxite of Turgay Ore Administration by ore thermal melting in an 80-kilovolt-ampere two-electrode single-phase tilting electric furnace. It is advisable to carry on the melting process in the electric furnace without addition of lime to the charge. The resultant intermediate is standard with regard of all indicators except FeO and S content. Results of theoretical investigations and study of the physical properties of bauxites and large-scale laboratory melts permit recommendation of the process of producing high-alumina intermediate from the raw material under study. Four tables. Bibliography with 16 titles.

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USSR

LAPSA, R. Kh.

"Chemical Defense Against Radiation"

Riga, Nauka i Tekhnika, No 11, 1971, pp 11-13

Abstract: Radiation absorbed by tissue excites and ionizes atoms or molecules, and then promotes the transformation and subsequent redistribution of the energy of these atoms or molecules. This second phase serves as the starting point in the search for an effective means of defense against radiation sickness. There are several means of prophylaxis: (a) to attempt to prevent the synthesis of free radicals, hydroxyl groups, and analogous compounds by reducing the concentration of oxygen and water in the tissues; (b) to attempt to lessen the after-effects of the biological action of radiation by introducing different compounds which can react with radicals already formed and protect the cell components from harmful effects; (c) to attempt to protect the more unstable links of the biochemical processes during irradiation by introducing substances capable at some time of reacting with the radio sensitive active groups of cell molecules; (d) to utilize substances which absorb the secondary radiation of water or inhibit energy exchange; (e) to introduce substances which promote the transfer of radioactive energy into thermal energy. It has been found that mercamine, a
1/2

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DISCHARGE OF GRANULAR MATERIAL SOLIDS FROM A FLUIDIZED BED -U-
AUTHOR--(03)-GELPERIN, N.I., AINSHTEYN, V.G., LAPSHENKOV, G.I.
COUNTRY OF INFO--USSR
SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(2), 39-41
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--FLUIDIZED BED, BERNOULLI EQUATION, LIQUID DROP MODEL,
MATHEMATIC MODEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/0930 STEP NO--UR/0065/70/015/002/0039/0041
CIRC ACCESSION NO--AP0107459
UNCLASSIFIED

2/2 022

CIRC ACCESSION NO--AP0107459

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LITERATURE AND AUTHOR GENERATED TITLE DATA ARE COMPARED AND EVALUATED TO DET. WHAT FACTORS CONTROL THE PROCESS. THE VALUE OF THE EXPONENT (N) IN THE RELATION $G_{SUBT} \sim \Delta P$ TO DELTA P PRIMEN, WHERE G_{SUBT} EQUALS PARTICLE DISCHARGE RATE AND DELTA P EQUAL PRESSURE DROP ACROSS PARTICLE LAYER ABOVE THE FLUIDIZING HOLE, COMMONLY GIVEN AS $N \sim G_{SUBT}^{0.5}$ OR 0.6 WAS EXAMD.; $N \sim G_{SUBT}^{0.5}$ AND $N \sim G_{SUBT}^{1.5}$ WERE EQUALLY VALID AT FLUIDIZATION (N) NOS. APPROXIMATELY 0.5 AND 0.8-1.6, RESP. AN EQUATION A WAS DEVELOPED WHICH RELATES $D_{SUBO} \sim D_{SUBO}^{-1}$ SUBEPSILON TO A WHERE D_{SUBO} EQUALS HOLE DIAM. FOR FLUIDIZED PARTICLE PASSAGE, D_{SUBO} EQUALS PARTICLE EQUIV. DIAM. AND A IS A DIMENSIONAL CONST. OF SEVERAL VARIABLES. RESULTS OF A VS. D_{SUBO} SUBEPSILON ARE COMPARED FOR D_{SUBO} EQUALS 0.15-0.80 MM; THESE SHOW THAT A IS DIRECTLY PROPORTIONAL TO, μ_{SUBP} , THE EFFECTIVE DISCHARGE COEFF. IN THE G_{SUBT} EQUATION DEVELOPED ON THE BASIS OF A LIQ. DROP MODEL. THE RESULTS ALSO CONFIRM THE VALIDITY OF THE BERNOULLI PRINCIPLE IN DETG. T SUBT WHICH CONTRADICTS THE L. MASSIMILLA (1961) FINDINGS.

UNCLASSIFIED

USSR

UDC: 681.327

LAPSHIN, A. I.

"A Permanent Memory"

USSR Author's Certificate No 330489, filed 7 Mar 69, published 21 Apr 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan
73, abstract No 1B446 P)

Translation: Permanent memories are known which contain decoders and memory matrices with magnetic or semiconductor elements located at the intersections of conductors to which pulse shapers and readout amplifiers are connected. These permanent memories are complicated in construction and insufficiently reliable.

The proposed permanent memory, as distinct from conventional units, contains a counter, coincidence gates, and a ring shift register. The output of the counter is connected to the second inputs of the coincidence gates, the first inputs of these gates being connected to the output of the shaping elements. The end-around shift register is connected to the conductors of the memory matrix.

This simplifies the device and increases its reliability. The proposed device uses a memory matrix in which the conductors are the storage elements; pulse shapers and readout amplifiers are eliminated from the matrix control unit, which is realized by low-power logic elements.

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USSR

UDC 681.327

LAPSHIN, A. I.

"A Memory Device"

USSR Author's Certificate No 267699, Filed 3/01/69, Published 8/10/70
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i
Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B272P)

Translation: There are well-known memory units which contain X decoder switches, Y decoder interrogation switches, Y decoder write switches, and a memory cube through which the interrogate and write wires are passed, with series-connected decoupling diodes. These devices have the following defects: great dispersion of maximum amplitude of pulses due to various combinations of parameters of elements in the interrogate and write circuits and formation of various combinations of these elements with selection of various numbers; great dispersion of pulse duration due to various combinations of parameters and elements of these circuits and also due to dispersion of parameters of the input control signals. This causes an increase in power consumption and a decrease in speed. The purpose of this invention is to eliminate the influence of dispersion of parameters of the interrogate and write circuit elements on the amplitude and duration of the interrogate and write pulses,
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USSR

LAPSHIN, A. I., USSR Author's Certificate No 267699, Filed 1/01/69, Published 8/10/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B272P)

the influence of various combinations of these elements in selection of various numbers, as well as the influence of the dispersion of parameters of the input control signals. The circuit of the MU provides for clear limitation of the amplitude of interrogate and write pulses to a fixed value, while the duration is limited to the time necessary for switching of the load. This causes a decrease in power consumption, an increase in speed, and an increase in reliability. The essence of the invention is that the common bus of all interrogate circuits, leading to the power supply, contains a limiting resistor connected in series, with a divider connected in parallel to the resistor and consisting of a series-connected resistor and TD; the point of connection of the resistor and diode is connected to the input of the cutoff switch, the output of which is connected to the input of the interrogate switches. A similar circuit is suggested for the write circuits. 1 fig.

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UDC: 543.387 + 546.32.227 + 662.219.2

LAPSHIN, A. I., BORODAYEVSKIY, V. YE. and BATSANOV, S. S., Institute of Heat Physics, Siberian Department, USSR Academy of Sciences

"A Study of the Stability of Potassium Persulfate under Explosive Action"

Moscow, Khimiya Vysokikh Energiy, Vol 4, No 2, pp 154-159

Abstract: Infrared and EPR spectroscopy methods were used to study effects of explosive action on $K_2S_2O_8$, as compared to pyrolytic and radiation effects. It was determined that explosive and radiation action result in the formation of analogous paramagnetic centers, but that explosive and pyrolytic actions differ substantially in this respect. Tabular data are given on the following: (1) pH-metric titration of the persulfate following explosion; (2) infrared absorption spectra of various sulfate samples; (3) absorption spectra for both irradiated and irradiated-"exploded" persulfate; and (4) EPR spectra of the persulfate obtained under various conditions.

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AUTHOR--(03)-LAPSHIN, A.I., BORODAYEVSKIY, V.YE., BATSANOV, S.S.

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ABSTRACT. ACTION OF EXPLOSION DERIVED
 DYNAMIC COMPRESSION ON K SUB2 S SUB2 O SUB8 WAS STUDIED. UNDER THE
 ACTION OF AN EXPLOSION, THE DECOMP. OF K SUB2 S SUB2 O SUB8 YIELDS K
 SUB2 SO SUB4 PLUS SO SUB3 PLUS 0.50 SUB2. IN CONTRAST TO THE PYROLYTIC
 DECOMP., WHICH IS USUALLY DESCRIBED BY THE EQUATION: K SUB2 S SUB2 O
 SUB8 YIELDS K SUB2 S SUB2 O SUB7 PLUS 0.50 SUB2. THE PRODUCT OBTAINED
 AFTER DYNAMIC COMPRESSION OF K SUB2 S SUB2 O SUB8 HAD UNUSUAL OXIDN.
 AND REDN. PROPERTIES. THE VERY COMPLEX STRUCTURE OF THE IR SPECTRA OF
 THE PRODUCT IS DESCRIBED AND DISCUSSED IN DETAIL. THE IR SPECTRA AND
 X RAY DIFFRACTION PATTERNS INDICATE THE PRESENCE OF S (SUB2 O SUB3
 NEGATIVE NEGATIVE, S SUB2 O SUB5 NEGATIVE NEGATIVE, AND SO SUB3
 NEGATIVE NEGATIVE. FORMATION OF THESE IONS PROBABLY EXPLAINS THE
 UNUSUAL REDUCING PROPERTIES OF THE PRODUCT AND THE PRESENCE OF H SUB2 C
 SUB1 IN ITS SOLNS. IN CONTRAST TO THE THERMALLY TREATED SAMPLES OF K
 SUB2 S SUB2 O SUB8, THE PRODUCT OBTAINED AFTER DYNAMIC COMPRESSION
 GIVES EPR SIGNALS SIMILAR TO THOSE GIVEN BY SAMPLES IRRADIATED BY GAMMA
 AND X RAYS.

FACILITY: INST. TEPLOFIZ. NOVOSIBIRSK, USSR.

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UDC: 669.187+621.391:519.28(048)

KOZHINSKIY, O.S., LAPSHIN, I.V., reviewers

Kiberneticheskiye Metody Analiza Elektroplavki Stali [Cybernetic Methods of Analysis of Electric Melting of Steel], by M. F. Galkin and Yu. S. Krolya, Moscow, Metallurgiya Press, 1971, 303 pp

Moscow, Stal', No 2, 1973, pp 131-132

Abstract: The monograph which is reviewed in this article is designed for metallurgists with no special mathematical training. The book consists of an introduction and 17 Chapters, combined into 4 sections. The first section is dedicated to the application of mathematical methods for identification of a technological process, including the necessary information from the theory of probabilities, information theory and mathematical statistics. The second section covers the application of mathematical methods for improvement of the technology of electric melting of steel, including information on some of the latest methods of applied mathematics. The third section covers problems of the application of the concepts and methods of cybernetics for improvement of control of various processes of

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KOZHINSKIY, O. S., LAPSHIN, I. V., *Stal'*, No 2, 1973, pp 131-132

the electric steelmaking process. The fourth section is the most significant and original, and is dedicated to control of electric melting on the basis of analysis of electrical characteristics. The reviewers criticize some details of the book but give it a positive evaluation on the whole.

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SHEPELYAKOVSKIY, K. Z., Doctor of Technical Sciences, VOSKRESENSKIY, V. V.,
Candidate of Technical Sciences, LAPSHIN, K. P., SUDZHAN, S. B., GREGOROVSKIY, N. S.,
ORLOVSKIY, A. G., ROZENTAL', G. A., and SIZOV, A. L., Moscow Evening Metallurgical
Institute, Moscow Auto Plant Izdel'Nikhachev

"High-Frequency Thyristor Converter for Induction Hardening Installations"

Moscow, Avtomobil'naya Promyshlennost' (Motor Vehicle Industry), No 1, 1970,
pp 28-29

Translation: A thyristor frequency converter and a dynamoelectric one are
compared. The power circuit and control and protection circuits of a 100 kw
2500 cps thyristor converter for an induction hardening installation are described.
(4 illustrations)

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Nitrogen Compounds

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LAPSHIN, N. M., PARKHOMENKO, T. N., and LUZIN, A. S.

"Chemistry of Nitrogen Ylides. III. Reaction of Quaternary Ammonium Salts of tert-Butyl Hydroperoxides With Esters"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 8, No 8, Aug 72, pp 1599-1601

Abstract: Complex esters react energetically with quaternary ammonium salts of tert-butyl hydroperoxides. Using the example of ethyl acetate and methylmethacrylate, it has been shown that a complex condensation of the esters takes place upon initiation by the base. However, it was not possible to isolate the condensation products. They break down to the acetic acid and methacrylic acid; their quaternary ammonium salts having been isolated from the reaction mixture. During the reaction quaternary ammonium salts of acetic and methacrylic acids were partially converted to respective substituted amides. The double bond of the methyl methacrylate remained untouched.

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UDC: 621.317.7:621.3.088

GRATSIANSKIY, I. N., LAPSHIN, V. B.

"Error in Circuits With Electronic Measuring Instruments"

Izv. VMyeI "Lenin", 1970, Book 3, pp 116-129 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5A191)

Translation: The paper deals with the important problem of certain measurement error components which may arise in measurement circuits which incorporate electronic measuring instruments. The formulation of the problem is outlined. It is pointed out that this is a preliminary report. The following points are discussed: common points of the measurement complex, errors due to parasitic couplings, the effect of the AC network, error due to power consumption, the instrumental error of the device described. General conclusions are formulated. E. L.

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